IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:	Smith, et al.	Confirmation No.:	9605
Serial No.:	09/703,213	Art Unit:	2145
Filed:	October 31, 2000	Examiner:	Adnan M. Mirza
For:	METHOD AND SYSTEM FOR OBSCURING USER ACCESS PATTERNS USING A BUFFER MEMORY	Attorney Docket No:	062105-0005-US (formerly 10199-005)

APPEAL BRIEF

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Sir:

(i)   <u>Real party in interest</u>

The real party in interest is iPrivacy.

(ii)   <u>Related appeals and interferences</u>

There are no related appeals and interferences.

(iii)   <u>Status of claims</u>

Claims 1-27, which are all the claims in the application, have been rejected. All the claims are being appealed.

(iv)   <u>Status of amendments</u>

No amendment was filed subsequent to final rejection.

(v)   <u>Summary of claimed subject matter</u>

Applicants' invention is directed to a method for obscuring user access patterns in a computer network. An example of the kind of access patterns that are obscured by the present invention is the "click data" that can be tracked as a user visits a server computer with his or her browser.

As applicants note in the Background of the Invention on page 1, line 27 to page 2 of the specification,

> "[S]hopping, browsing and other information-sharing activities on the Internet expose users to unwanted collection of their private and personal information, from which their identities, activities, behaviors and preferences can be ascertained. For example, without a user's permission, web marketers and merchants often gather "click data" that details every web-site a user visits with his or her browser. Underlying communications protocols and systems may provide additional private and/or personal information. This data is then used to create demographic profiles linked with the user's identity, including his or her name, postal address and e-mail address, gender, age, and other personal information. This information is routinely bought and sold among parties who link and merge the information with other transaction data from other sources (i.e., "data mining") offered for sale by third parties and vendors to create a sophisticated and detailed behavior profile of users, in order to target those users for advertising."

In accordance with the invention, user access patterns are obscured in two ways. First, some access patterns are never made available to the server computer. This is accomplished by using a cache memory to store some of the information requested by the user computer. The operation of a cache memory is described at page 5, lines 14-25 of applicants' specification:

> "In particular, the use of a small amount of 'buffer' cache memory, consisting of a small portion of fast, expensive memory, in conjunction with a larger, cheaper, slower memory, has proven effective. Buffer caches are widely used in computer systems because computer programs exhibit 'locality of reference' properties such that references in the program to memory locations tend to access repeatedly the same locations in memory. This makes it feasible to reduce system costs and improve average access time by storing the computer program in the slow memory and transferring referenced items from the slow memory to the fast memory, where they can be used subsequently. When references, arranged in a so-called 'reference string,' are made against the combined memories, access time is improved whenever the reference string repeatedly accesses the same locations, so that the references can be satisfied with the copy in fast memory."

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While the cache memory of applicants' invention ultimately gets its information from the server computer, the cache memory will be able to service some of the user computer's repeated requests from its own memory contents and will not have to access the server computer. As a result, for these repeated requests, no access is made to the server computer and these parts of the user's access patterns are never made available to the server computer. For example, as shown in applicants' Fig. 1, requests for indices 05, 09 and 03 shown in rows 106, 108 and 110 are obscured since these requests are satisfied from the cache memory instead of the server computer. See page 7, line 33 to page 8, line 11, of the specification.

Where the requested information is not available in the cache memory, a second technique is employed to obscure the user's access patterns to the server computer. In particular, the request is edited to obscure user identity information. See, step 165 of Fig. 2 and page 8, line 13, of the specification. As a result, anyone attempting to trace the request will have difficulty linking it to the user computer.

These features of applicants' invention are captured in the language of the claims. For example, method claim 1 requires a user request for information from another network member to be routed first to a cache memory (step 155 of Fig. 2; page 8, lines 8-10 of the specification) and for the requested information to be provided if the cache memory contains the information without releasing the request to the network member (steps 160, 180; page 8). Further, claim 1 requires that if the cache memory does not contain the requested information, user identity information in the request is edited to obscure such information before the edited request is released to the network member (steps 160, 165, 170; page 8, lines 12-16).

Finally, claim 1 specifies that requested information is received from the network member and stored in the first cache memory from which it can later be retrieved in response to a user request (step 175; page 8, lines 16-18).

Independent claim 11 is directed to a computer program that performs the same steps that are recited in claim 1.

Independent claim 19 is directed to a system for performing the invention. The system includes a user computer 202 (Figs. 3, 3A-3D; page 8, line 31) a server computer 204 (Figs. 3, 3A-3D; page 9, line 7), a first cache memory 200 (Figs. 3, 3A-3D; page 8, line 32 to page 9, line 6), and a reference editing function 206 capable of editing user identity information (Figs. 3, 3A-3D, page 9, lines 5-7). The system operates so as to satisfy user requests that can be satisfied by information stored in the cache and obscure the true identity of the requester of those requests that cannot be satisfied at the cache prior to release to the server computer (page 9, lines 3-7).

(vi)   Grounds of rejection to be reviewed on appeal

Claims 1-27 were rejected under 35 USC 103(a) as unpatentable over Beser et al. (U.S. Patent No. 6,523,068) and Peckover (U.S. Patent No. 6,119,101).

(vii)   Argument

In rejecting the claims, the Examiner relies on Beser for everything except details relating to the editing of user identity information to obscure the identity information. Beser, however, does not disclose applicants' claimed use of a cache memory.

Beser is directed to a method for hiding the destination and source addresses found in the header of message packets by encapsulating the message packets in other message packets. This is alleged in the Background of the Invention in Beser to provide for privacy on the Internet by

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making it difficult to determine the IP source address of the packet and associate it with a particular user. This is not the issue, however, that is addressed by applicants.

The structure of an Internet Protocol Packet 80 is shown in Fig. 3 of Beser. The packet comprises a header 82 and a payload 84. The header includes a beginning 86, a source address 88, a destination address 90 and a header end 92. As illustrated in Fig. 20 of Beser, a packet having a second header 450 and a second payload 452 is incorporated as the payload within another packet having a first header 446. As a result, the IP source address in the second header is not located at the same place in the packet relative to the beginning of the packet as it ordinarily would be and a hacker might have some difficulty locating it.

The process of incorporating one packet as the payload of another packet is conventinal and is frequently called encapsulation. With reference to Fig. 2 of Beser, Col. 7, line 66 to Col. 8, line 14 describes the conversion of a stream of data into a series of datagrams and the formation of a packet 80 at IP layer 58 by encapsulating a UDP60 datagram as payload with a header that includes an IP source address field 88 and a destination address field 90. The complete packet 80 is then passed to the data link layer where it is encapsulated in a MAC54 frame.

Beser, however, does not disclose the use of a cache memory and in particular does not disclose the use of a cache memory that may store information requested by the user. Further, Beser does not disclose the use of a cache memory that returns the requested information if the information is in the cache memory, thereby avoiding release of the user request to a network member.

The Examiner appears to assert at paragraph 2 of his final Office Action that the use of a cache memory is described at col. 7, lines 65-67 and col. 8 lines 1-14 of Beser. However, as just

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indicated above, these lines simply describe how data is packetized and transmitted using the Internet Protocol. The Examiner also asserts that the operation of a cache memory is described at col. 18, lines 43-52. Again, however, such details are not taught in Beser. What is taught at col. 18, lines 43-52 is simply the examination of an IP packet 232 at network device 14 to determine if it includes the address of another device. Network device 14 is not a cache memory. Likewise, the Examiner's reference to Col. 31, lines 37-45 does not refer to the operation of a cache memory but rather to another description of an encapsulation process.

Peckover is relied upon only for the teaching of details about the editing of user information to obscure identity information. Peckover discloses a system of agents for representing buyers and sellers in ecommerce including a consumer personal agent, a provider personal agent, a decision agent and a demand agent. Peckover, however, does not disclose any use of a cache memory or the specific application to which the cache memory is put in applicants' invention.

In the absence of any teaching in Beser or Peckover of any use of a cache memory or the specific application to which the cache memory is put in applicants' invention, independent claims 1, 11 and 19 are patentable over the art cited.

Dependent claims 2-10, 12-18 and 20-27 are believed patentable for the same reason claims 1, 11 and 19 are patentable. Dependent claims 2, 3, 12, 13, 20 and 21 are believed patentable for the additional reason that they teach the use of an additional cache memory in the method, program and system of the present invention. In rejecting these claims, the Examiner relies on col. 18, lines 43-52, and col. 31, lines 37-45 of Beser, the same disclosure on which the Examiner relies in rejecting claims 1, 11 and 19. However, network device 14 of Beser is not a cache memory and these lines do not disclose the use of two cache memories.

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In his response to applicants' arguments that Beser did not disclose any use of a cache memory, the Examiner refers to a statement at col. 22, lines 33-35 of Beser that the network device "may store the private network addresses . . . on the originating network device." This, however, is not a teaching about the use of a cache memory for any function, let alone the functional relationships specified in the claims.

Further, the Examiner asserts that it is known that a cache is defined as storage space and every network device consists of storage space. The point of these assertions is not understood. While network devices may include storage space, Beser's teachings on the use of network devices do not disclose or suggest the use of caches and they do not suggest the specific uses of the cache memory recited in the claims.

(viii)   Claims Appendix

1.   (Original) In a computer network, a method for obscuring user requests for information comprising:

routing a user computer request for information, aimed at another network member, to a first cache memory;

if the first cache memory contains the requested information, returning the requested information in response to the user request without releasing the user request to the network member;

if the first cache memory does not contain the requested information, editing user identity information contained in the request, resulting in an edited request with obscured identity information;

releasing the edited request to the network member;

receiving the requested information from the network member; and

storing a copy of the requested information in the first cache memory such that user requests for information that can be satisfied by information stored in the cache memory are not revealed to other network members, and user requests that cannot be satisfied by the cache memory are obscured by editing prior to release to other network members.

2. (Original) The method of claim 1, further comprising the step of:

routing the edited request to a second cache memory prior to releasing the edited request to the network member; and

if the second cache memory contains the requested information, returning the requested information in response to the edited request without releasing the edited request to the network member.

3. (Original) The method of claim 2, further comprising the step of:

if the second cache memory does not contain the requested information, further editing the user identity information contained in the edited request prior to releasing the edited request to the network member.

4. (Original) The method of claim 1, wherein the computer network is the Internet.

5. (Original) The method of claim 4, wherein the user computer request for information is a Uniform Resource Locator (URL) reference string.

6. (Original) The method of claim 1, wherein the network member is a server computer.

7. (Original) The method of claim 1, wherein the first cache memory is resident on the user computer.

8. (Original) The method of claim 1, wherein the first cache memory is resident on a computer remote from the user computer.

9.   (Original) The method of claim 1, wherein the editing is performed by the user computer.

10.   (Original) The method of claim 1, wherein the editing is performed by a computer remote from the user computer.

11.   (Original) In a computer network, a software program implemented in a computer system for obscuring user requests for information, said software program configuring the computer system to:

route a user computer request for information, aimed at another network member, to a first cache memory;

if the first cache memory contains the requested information, return the requested information in response to the user request without releasing the user request to the network member;

if the first cache memory does not contain the requested information, edit user identity information contained in the request, resulting in an edited request with obscured identity information;

release the edited request to the network member;

receive the requested information from the network member; and store a copy of the requested information in the first cache memory such that user requests for information that can be satisfied by information stored in the cache memory are not revealed to other network members, and user requests that cannot be satisfied by the cache memory are obscured by editing prior to release to other network members.

12.   (Original) The software program of claim 11, further configuring the computer system to:

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route the edited request to a second cache memory prior to releasing the edited

request to the network member; and

if the second cache memory contains the requested information, return the

requested information in response to the edited request without releasing the edited request to the

network member.

13.   (Original) The software program of claim 12, further configuring the computer

system so that, if the second cache memory does not contain the requested information, it edits

the user identity information contained in the edited request prior to releasing the edited request

to the network member.

14.   (Original) The software program of claim 11, wherein the computer network is

the Internet.

15.   (Original) The software program of claim 14, wherein the user computer request

for information is a Uniform Resource Locator (URL) reference string.

16.   (Original) The software program of claim 11, wherein the network member is a

server, computer.

17.   (Original) The software program of claim 11, wherein the cache memory is

resident on the user computer.

18.   (Original) The software program of claim 11, wherein the cache memory is

resident on a computer remote from the user computer.

19.   (Original) In a computer network, a system for obscuring user requests for

information comprising:

a user computer having a processor;

a server computer containing information sought by the user computer; a first cache memory capable of storing information; and

a reference editing function capable of editing user identity information contained in a request for information, wherein a request for information from the user computer, aimed at the server computer, is routed by the processor to the first cache memory, and

if the first cache memory contains the requested information, the requested information is returned in response to the user request without releasing the user request to the server computer; but

if the first cache memory does not contain the requested information, the first reference editing function edits user identity information contained in the request prior to releasing the request to the server computer, and upon receipt of the requested information from the server computer, the first cache memory stores a copy of the requested information

such that user requests for information that can be satisfied by information stored in the first cache memory are not revealed to other network members, and user requests that cannot be satisfied by the first cache memory are obscured by the first reference editing function prior to release to the server computer.

20.   (Original) The system of claim 19, further comprising a second cache memory wherein the edited request for information is routed to the second cache memory prior to release to the server computer, and if the second cache memory contains the requested information, the requested information is returned in response to the edited request without releasing the edited request to the server computer.

21.   (Original) The system of claim 20, further comprising a second reference editing function, wherein if the second cache memory does not contain the requested information, the

second reference editing function further edits the user identity information contained in the edited request prior to releasing the edited request to the server computer.

22. (Original) The system of claim 19, wherein the computer network is the Internet.

23. (Original) The system of claim 22, wherein the user computer request for information is a Uniform Resource Locator (URL) reference string.

24. (Original) The system of claim 19, wherein the first cache memory is resident on the user computer.

25. (Original) The system of claim 19, wherein the first cache memory is resident on a computer remote from the user computer.

26. (Original) The system of claim 19, wherein the first reference editing function is resident on the user computer.

27. (Original) The system of claim 19, wherein the first reference editing function is resident on a computer remote from the user computer.
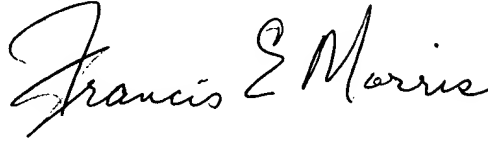
(ix)   Evidence Appendix

None

(x)   Related Proceedings Appendix

None

In view of the forgoing remarks, the claims in this application are believed to be in condition for allowance. Such action is respectfully requested.
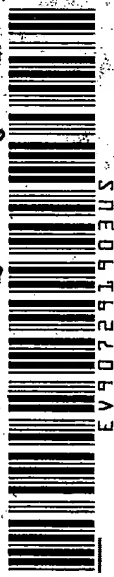
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